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WINTER DAMAGE AT THE MORTON ARBORETUM (WINTER 1958-59)

A late mild autumn, a 4.41 inch precipitation deficiency for 1958 and a sudden temperature drop to zero° (F.) on the last day of November marked the beginning of a severe winter during which temperature readings of zero (F) or below were recorded on twenty three days. These circumstances combined to create a condition extremely detrimental to the welfare of many plants.

On the basis of the rainfall shortage alone vegetation went into the winter with the odds against it. The abnormally mild weather of November further complicated the situation. Temperatures of 50°F or above occurring on eighteen days, of 60° or more on seven, and 70° or over on two, prevented normal hardening of the wood before the abrupt drop to 9° above on November 27. The zero reading following on the 30th marked the beginning of a period of almost unbroken cold which persisted until mid-March. Sixteen degrees below zero (F) on January 5 was the lowest temperature recorded at the Arboretum. The heavy snow covering on the ground most of the winter undoubtedly minimized the damage to some plants, but failed to provide the degree of protection expected of it.

With the arrival of spring the most noticeable winter injury became evident, the widespread winter burn of the Yews (*Taxus* in variety). Although the "*media*" forms, hybrids of tender "*baccata*" (English Yew) and "*cuspidata*" (Japanese) parentage were particularly hard hit, in many instances the hardier Japanese Yews suffered likewise. This has necessitated removing much of the damaged tip growth. Adventitious buds are now beginning to develop on the live wood, however, and browned needles starting to drop. Other coniferae showing the effects of winter burn included several pines and numerous Junipers. And, as the list shows, losses among the broad-leaved evergreens were appreciable. In fact, never before has the importance of location, drainage and exposure shown up more clearly.

The following survey, while not intended to be all inclusive, reports the major casualties and injuries evident to date.

PLANTS KILLED DURING THE WINTER OF 1958-59

Needle and Broad-leaved Evergreens

Cephalotaxus drupacea, Plum Yew

Ilex crenata, Coles Hardy Strain, Coles Japanese Holly

Ilex crenata convexa, Convexleaf Japanese Holly (has never proved satisfactory in the Chicago area)

Ilex crenata hetzi, Hetz Japanese Holly

Ilex crenata latifolia, Bigleaf Japanese Holly

Kalmia latifolia, Mountain Laurel (plants elsewhere in the area wintered satisfactorily)

Leucothoe recurva, Redtwig Leucothoe

Mahonia beali, Leatherleaf Mahonia (a plant set out in 1953)

Prunus laurocerasus schipkaensis, Schipka Common Laurelcherry

Rhododendron arnoldiana Mello Glo (planted in 1949)

Rhododendron arnoldiana Mossicana (planted in 1949)

Rhododendron Billy Gable

Rhododendron calendulaceum, Flame Azalea (planted in 1951)

Rhododendron carolinianum, Carolina Rhododendron (established plants)

Rhododendron catawbiense alba, White Catawba Rhododendron

Rhododendron catawbiense Charles Dickens

Rhododendron catawbiense Dr. Dresselhuys

Rhododendron catawbiense Lees Dark Purple

Rhododendron catawbiense Mme. Carvalho

Rhododendron catawbiense Mrs. C. S. Sargent

Rhododendron H. H. Hume #224

Rhododendron maximum, Rosebay Rhododendron (old established plants)

Rhododendron obtusum kaempferi, Torch Azalea (Ericaceous Group)

Taxus chinensis, Chinese Yew

Deciduous Plants

Alnus cordata, Italian Alder (2 plants—Street Tree Group)

Baccharis halimifolia, Groundsel Bush

Buddleia alternifolia, Fountain Butterflybush (a number of established plants in several locations)

Buddleia davidi in variety, Orangeeye Butterfly Bush

Cotinus coggygria, Common Smoke Tree (plants in exposed situations killed)

Fraxinus velutina glabra, Modesto Ash (all trees in Street Tree Group)

Kerria japonica alba picta, Whiteedge Japanese Kerria (all plants killed)

Koelereteria paniculata, Panicked Goldenrain Tree (all plants in Street Tree Group)

Laburnum vossii, Goldenchain Tree (an established flowering tree in Wheaton, killed outright)

Malus yunnanensis veitchii, Veitch Yunnan Crabapple (all plants in Street Tree Group)

Prunus cerasifera forms, Myrobalan Plum

Prunus persica in var., Flowering Peach

Prunus serrula

Quercus robur, English Oak (several trees)

Stewartia ovata, Mountain Stewartia

Stewartia pseudocamellia, Japanese Stewartia

PLANTS SHOWING SERIOUS WINTER INJURY

Needle and Broad-leaved Evergreens

Berberis julianae, Wintergreen Barberry, (killed to ground)

Euonymus kiautschovicus, Spreading Euonymus (killed to ground)

Ilex opaca, American Holly (20 yr. old hedge in Hedge garden almost completely killed back)

Ilex opaca "Bosley Hedging Holly" (severely damaged)

Libocedrus decurrens, California Incense Cedar (in very poor condition)

Mahonia aquifolium, Oregongrape Mahonia (severe winter foliage burn)

Mahonia repens, Creeping Mahonia (severe winter foliage burn)

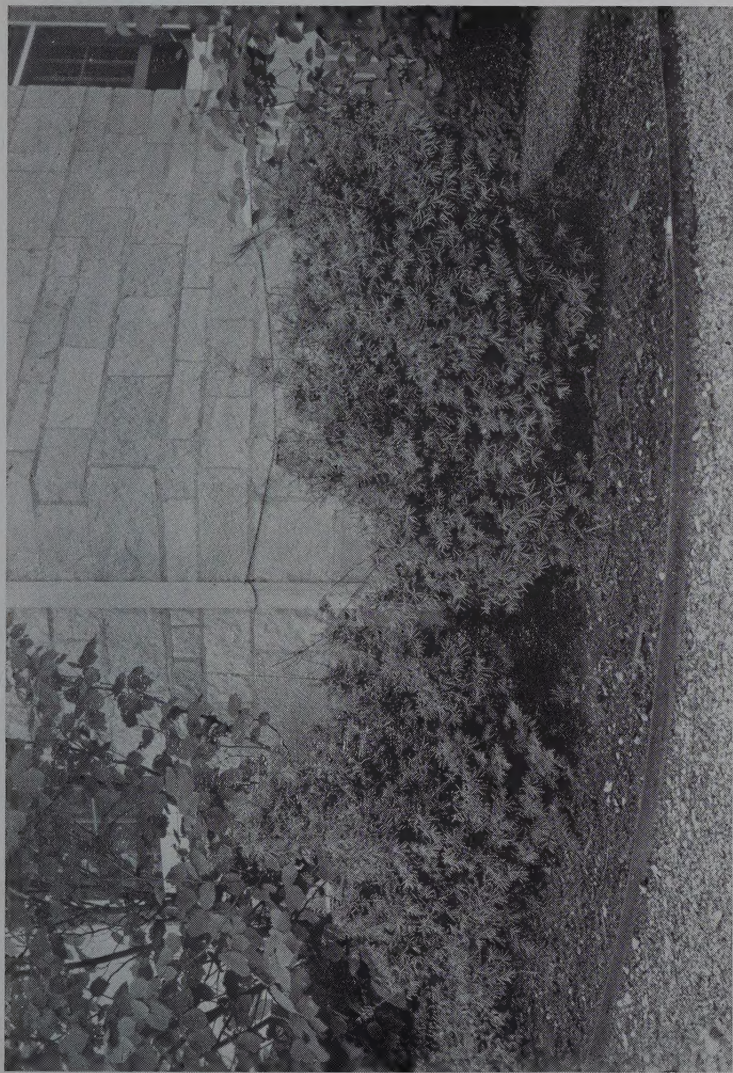
Pachistima canbyi, Canby Pachistima (severe foliage burn even in the shade of evergreens)

Taxus baccata repandens, Spreading English Yew (foliage badly burned)

Taxus cuspidata densa, Cushion Japanese Yew

Taxus media in variety (severe foliage burn)

"brownii", "hatfieldi", "hicksi", "wardi", and others



Badly burned plants of compact Japanese Yews, *Taxus cuspidata*, at the southeast corner of the original section of the Arboretum Center Building. Considerable pruning has been necessary to restore them to a presentable condition.

Deciduous Plants

- Acer capillipes* (seriously injured)
Berberis mentorensis, Mentor Barberry (informal hedge seriously injured)
Cercis canadensis "Withers Pink Charm", Withers Pink Charm Redbud (killed to ground)
Corylopsis sinensis, Chinese Winterhazel
Cotinus coggygria, "purple leaved" forms
Cotoneaster adpressa, Creeping Cotoneaster
Cotoneaster apiculata, Cranberry Cotoneaster
Cotoneaster divaricata, Spreading Cotoneaster (killed back to ground)
Hibiscus syriacus, Althea, Rose of Sharon (injury variable according to location)
Hydrangea quercifolia, Oakleaf Hydrangea (killed to ground)
Kerria japonica, Japanese Kerria (killed to ground)
Ligustrum ibolium, Ibolium Privet (informal hedge) (most of the top growth killed)
Liquidambar styraciflua, Sweet Gum (a number of 6 - 8 ft. trees planted in 1958 killed to ground; larger established specimens leafed unevenly)
Lonicera fragrantissima, Winter Honeysuckle (killed to the ground)
Lonicera purpusi, Purpus Honeysuckle (killed to the ground in most locations)
Parthenocissus tricuspidata, Boston Ivy (killed back on both north and south walls)
Prunus subhirtella pendula, Weeping Spring Cherry (seriously injured)
Rhodotypos scandens, Black Jetbead (killed to ground)
Rosa multiflora, Japanese Rose (widespread die-back)
Rosa rugosa Blanc Double de Coubert, Blanc Double de Coubert Rose (considerable die-back)
Syringa emodi, Himalayan Lilac
Viburnum burkwoodi, Burkwood Viburnum (killed back in various locations)
Viburnum chenaulti, Chenault Viburnum
Viburnum dilatatum, Linden Viburnum (killed to the ground)
Viburnum glomeratum (seriously injured)
Viburnum juddi (killed to the ground)
Viburnum opulus xanthocarpum, Yellowfruit European Cranberrybush Viburnum
Viburnum rhytidophyllum, Leatherleaf Viburnum (killed to the ground)
Viburnum setigerum, Tea Viburnum (killed to the ground)
Viburnum tomentosum, Doublefile Viburnum (winterkilling variable in different locations, several plants blossoming normally)
Viburnum tomentosum mariesi, Maries Doublefile Viburnum (killed to the ground)
Zelkova serrata, Japanese Zelkova (injury variable depending on location)

PLANTS SHOWING INJURY TO A LESSER DEGREE

- Acer carpinifolium*, Hornbeam Maple
Acer davidi, David Maple
Berberis thunbergi atropurpurea, Redleaf Japanese Barberry (formal hedge)
Castanea mollissima, Chinese Chestnut (leafed out abnormally)
Cedrus libani, Cedar of Lebanon
Chaenomeles lagenaria umbilicata, Umbilicata Flowering Quince (killed back)
Chamaecyparis lawsoniana, Lawson Falsecypress
Chamaecyparis thyoides, White Cedar Falsecypress (hedge burned)
Cornus officinalis, Japanese Corneliancherry Dogwood (some flower buds blasted by the cold)
Eucommia ulmoides (leafed out irregularly)
Euonymus fortunei vegeta, Bigleaf Wintercreeper Euonymus (leafed out irregularly)
Fontanesia fortunei, Fortune Fontanesia
Forsythia Arnold Dwarf, Arnold Dwarf Forsythia (top growth injured)
Forsythia in variety (some plants seriously injured, others undamaged)
Hedera helix baltica, Baltic Ivy (foliage badly burned)
Hydrangea petiolaris, Climbing Hydrangea (leafed out unevenly)
Ligustrum amurense "North", Amur Privet (hedge developed considerable dead wood)
Ligustrum obtusifolium regelianum, Regels Border Privet (informal hedge)
Liriope spicata, Lily Turf (slow to come into growth)
Magnolia salicifolia, Anise Magnolia (some flower buds blasted by the cold)
Metasequoia glyptostroboides, Dawn Redwood (leafed out unevenly)
Morus alba Kingan, "Fruitless Mulberry"
Nyssa sylvatica, Sour Gum (some plants seriously injured, others undamaged)
Pyracantha coccinea Lalandi, Laland Firethorn (leafed out unevenly, foliage badly burned)
Rhododendron schlippenbachii, Royal Azalea (leafed out irregularly)
Rosa setigera, Prairie Rose (some winterkilling of canes occurred)

Securinega suffruticosa (winterkilling of new growth evident)
Sorbaria sorbifolia, Ural Falsespirea (killed back to ground)
Symphoricarpos in variety, Snowberry, Coralberry (some winterkilling evident)
Tamarix in variety, Tamarisk (winterkill variable according to location)
Viburnum rhytidophylloides, Lantanaphyllum *Viburnum* (leafed irregularly)

REPUTEDLY TENDER PLANTS WHICH BLOOMED IN SPIE OF THE WINTER'S SEVERITY

Abeliophyllum distichum, Korean Abelialeaf (blossomed normally)
Calycanthus floridus, Sweetshrub
Cornus florida, Flowering Dogwood (some plants in sheltered locations blossomed although the bracts were imperfectly formed)
Deutzia lemoinei compacta, Compact Lemoine Deutzia (blossomed well)
Genista pilosa, Silkyleaf Woadwaxen
Genista species, Woodwaxen (flowered profusely)
Hamamelis mollis brevipedata, Chinese Witchhazel variety (flowered normally)
Lindera benzoin, Spice Bush (flowered in spite of some winterkilling)
Magnolia tripetala, Umbrella Magnolia
Magnolia virginiana, Sweetbay Magnolia
Neillia uckii, Neillia (blossomed well)
Neviusia alabamensis, Snowwreath
Weigela Bouquet Rose (flowered normally)
Weigela Feerie (flowered normally)
Weigela florida foliis purpureus (flowered normally)
Weigela Groenewegeni (flowered normally)
Weigela Vaniceki, Vanicek Weigela (flowered normally)
Wisteria "tree form" (from Willis Nurseries)

SOME PLANTS OF QUESTIONABLE HARDINESS WHICH WINTERED SATISFACTORILY

Acer griseum, Paperbark Maple
Acer palmatum atropurpureum, Bloodleaf Japanese Maple
Acer palmatum atropurpureum dissectum, Threadleaf Japanese Maple
Cudrania tricuspidata
Paulownia tomentosa, Royal Paulownia (plants above Cactus Pit remained alive to the tips; the older one in Drainage Group killed to the ground)
Prunus persica "Tennessee Red Leaf", Tennessee Red Leaf Peach
Pueraria thunbergiana, Kudzuvine
Torreya nucifera, Japanese Torreya

PLANTS ORDINARILY SUSCEPTIBLE TO WINTER INJURY WHICH CAME THROUGH WITH RELATIVELY LITTLE DAMAGE

Thuja occidentalis in variety, Arborvitae

E. L. Kammerer

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